



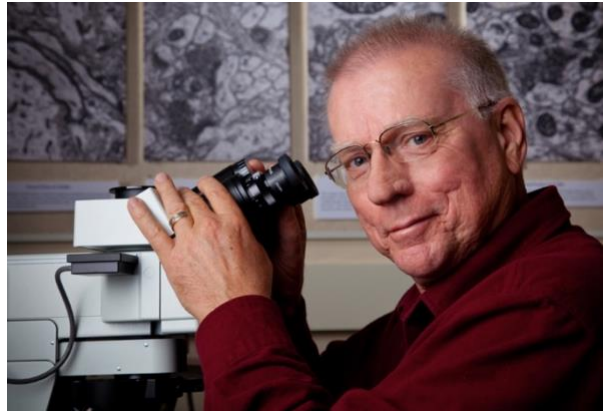
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CCBN to create dynamic imaging research program

Researchers surmise that Alzheimer’s disease can start 20 or 30 years before any signs or symptoms appear, but they don’t know exactly what’s going on in the brain in those early stages of the disease.

University of Lethbridge neuroscientists want to track the gradual emergence of Alzheimer’s disease through a state-of-the-art imaging research program that could ultimately lead to earlier diagnoses, prevention strategies and evaluation of new treatments.

Dr. Robert Sutherland, principal investigator, and co-investigators, Drs. Robert McDonald, Bruce McNaughton and Majid Mohajerani, will primarily use rodent models to understand the underlying biological processes associated with the development of Alzheimer’s disease.



“Alzheimer’s disease appears to be the result of the interaction of positive and negative risk factors, such as education, smoking and hypertension,” says Sutherland. “We want to know the precise mechanisms at work between these early risk factors and the development of Alzheimer’s disease.”

Building on the specialized infrastructure already available at the Canadian Centre for Behavioural Neuroscience, the research program will focus on the trajectory of Alzheimer’s disease on functional and physiological processes in an effort to understand how the interactions between genetics, epigenetics and physiology produce key pathology. The group of researchers will conduct experiments on rodents from adolescence to old age, roughly six weeks to six months of age, looking at genetic makeup, environmental interventions and potential drug therapies while measuring behaviour, biological markers and imaging the brain. Among the factors to be evaluated are circadian rhythms (sleep/wake cycles), cognitive reserve (the capacity to maintain normal cognitive function in the presence of pathology) and early life stress.

“Knowledge of the mechanisms at work in Alzheimer’s disease will be extremely useful for finding early diagnostic methods, discovering interventions that are effective earlier in the course of the disease, and for finding new preventive strategies,” says Sutherland.

The research team expects to develop an animal platform that will quickly predict which treatments and preventive measures will be effective in Alzheimer’s disease, thus giving drug and academic labs and international partners the chance to test candidate therapeutics before clinical trials.

“Our proposal will lead to faster and more predictable development of treatments for Alzheimer’s disease,” says Sutherland. “In addition, our work will identify the independent importance of positive and negative risk factors in Alzheimer’s disease.”

Seed funding was provided through the Hope for Tomorrow Dementia Research Catalyst Grant from the Alzheimer Society of Alberta and Northwest Territories. The grant is a one-time funding opportunity providing \$1 million. The funds must be matched for a total \$2-million investment to advance dementia research in Alberta.

“We are pleased to award the University of Lethbridge team funds from the Hope for Tomorrow Grant to further their research,” says Chris Lane, president of the Board of Directors, Alzheimer Society of Alberta and Northwest Territories. “Ongoing research brings hope to those living with the disease and highlights the importance of quality dementia research right here in Alberta.”

The \$500,000 grant awarded to the U of L has been matched by the University of Lethbridge, Polaris Award fund, CAIP Chair Award in Brain Aging & Dementia, Harley Hotchkiss Memorial Fund, Bette Beswick and an anonymous donor.

“We are very grateful to the Alzheimer Society of Alberta and Northwest Territories for this grant and to our generous donors who have provided matching funding,” says Sutherland. “This grant will enable us to gain an understanding of the mechanisms at work in the earliest stages of Alzheimer’s disease.”

To view online: <http://www.uleth.ca/unews/article/ccbn-create-dynamic-imaging-research-program>

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